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Yusaku Shimaoka

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EXAMINER

BROOKS, JERRY L.

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,759	Applicant(s) SHIMAOKA ET AL.	
	Examiner JERRY BROOKS	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02/24/2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,8,10-16,18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,3,4,6,8,10-16,18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claim 4 is withdrawn in view of the newly discovered reference(s) to Bohler et al. (2002/0044445). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4,6,8 and 10-16,18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohler et al. (2002/0044445) in view of Noji et al (6,543,900 B2).

With respect to claim 1, Bohler discloses a projection display apparatus comprising (fig.2): a first light generating (101) instrument which includes a light source that generates white light; a second light generating instrument (104) which includes a plurality of solid state light sources which generate red, green, and blue monochromatic light respectively (see paragraph 0049); a color wheel (109) including first, second, and third regions corresponding to red, green, and blue colors respectively, the first, second, and third regions circularly arranged (see fig.5A); a light guiding instrument (103) which

Art Unit: 2878

switches between guiding the white light and the monochromatic light to the element color wheel (switches via timing circuit 104); a light modulation element (120) which modulates the light that has passed through the color wheel; however Bohler does not disclose a projection instrument which projects the light modulated by the light modulation element.

Noji discloses a projection system wherein a projection instrument projects the light modulated by the light modulation instrument (fig.1,14).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the projection display apparatus of Bohler with the projection instrument of Noji to improve the utility of the display device.

With respect to claim 3, Bohler in view of Noji disclose the projection display apparatus according to claim 1, wherein the second light modulation element generating instrument lights up the solid state light sources selectively so that there is a match between a color corresponding to one of the regions of the color wheel located in a light path and the color of the monochromatic light (see red led in fig.5, b).

With respect to claim 4, Bohler in view of Noji discloses the projection display apparatus according to claim 1, wherein the color wheel (109) further includes a region corresponding to white (clear: see paragraph 0032), and stops in a state of having the region corresponding to white located in a light path while the monochromatic light is guided (via the timing circuit) by the light guiding instrument (see paragraph 0032);

Art Unit: 2878

Bohler does not disclose wherein the monochromatic light is selected by the light guiding instrument.

Noji teaches a projection display apparatus wherein a light guiding instrument (3a) selects between light sources.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Bohler device with the teachings of Noji to efficiently utilize the desired light sources.

With respect to claim 6, Bohler in view of Noji discloses the projection display apparatus according to claim 1, Bohler further teaches comprising: a timer which allows the light guiding instrument to guide the monochromatic light (as discussed in claim 1 above) to the color and then uses the light guiding instrument after a predetermined time to guide the white light to the color (by shutting of the LEDs only the white light will be guided to the color wheel); Bohler does not disclose a control instrument which controls at least the operation of the light guiding instrument, and wherein: the control instrument controls the guiding instrument to guide the monochromatic light to the color wheel, and then controls the light guiding instrument after a predetermined time to guide the white light to the color while.

Noji teaches a control instrument which controls at least the operation of the light guiding instrument wherein the control instrument controls the light guiding instrument to switch between light sources.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the projection display apparatus of Bohler with the control instrument of Noji so that the control instrument controls the guiding instrument to guide the monochromatic light to the color wheel, and then controls the light guiding instrument after a predetermined time to guide the white light to the color while to efficiently utilize the desired light sources.

With respect to claim 8, Bohler in view of Noji discloses the projection display apparatus according to claim 6, wherein:

Bohler does not disclose the control instrument includes a light volume measuring instrument which at least measures a light volume of the first light generating instrument, and controls the light guiding instrument to guide the white light to the light modulation element at the time as the predetermined time, when the light volume measured by the light volume measuring instrument becomes equal to or more than a predetermined value.

Noji discloses the control instrument (19a and 20f-d and micro-computer: 108) includes a light volume measuring instrument (step s6 implicitly discloses a light volume measuring instrument) which at least measures a light volume of the first light generating instrument (1a), and controls the light guiding instrument to guide the white light to the light modulation element at the time as the predetermined time, when the

Art Unit: 2878

light volume measured by the light volume measuring instrument becomes equal to or more than a predetermined value (see col.8, lines 45-65 and see fig.1, 3a and 3b).

It would have been obvious to one of ordinary skill in the art to modify the projection display system of Bohler with the light volume measuring and light guiding instrument of Noji to improve the image quality by controlling the intensity of the light passing through the color wheel.

With respect to claim 10, Bohler in view of Noji discloses the projection display apparatus according to claim 1, Bohler discloses an optical axis of the white light generated by the first light generating instrument between the first light generating instrument (lamp 101) and the collector (102) optics is substantially on a straight line (see fig.1); and the optical axis of the monochromatic light generated by the second light generating instrument (104) between the second light generating instrument (and the collector optics is bent via the light guiding instrument (103).

With respect to claim 11, Bohler in view of Noji discloses the projection display apparatus according to claim 1, Bohler discloses an optical axis of the white light generated by the first light generating instrument between the first light generating instrument (lamp 101) and the collector (102) optics is substantially on a straight line (see fig.1); and the optical axis of the monochromatic light generated by the second light generating instrument (104) between the second light generating

Art Unit: 2878

instrument (and the collector optics is bent via the light guiding instrument (103); Bohler in view of Noji does not disclose wherein the optical axis of the monochromatic light generated by the second light generating instrument between the second light generating instrument and the collector optics is substantially on a straight line; and the optical axis of the white light generated by the first light generating instrument between the first light generating instrument and the collector optics is bent via the light Guiding instrument.

However, Bohler in view of Noji discloses the claimed invention except for the positions of the lamp (101) and LEDs (104) with respect to the light guiding element (103). It would have been obvious to one having ordinary skill in the art at the time the invention was made to reconfigure the lamp and LEDs with respect to the light guiding element so that the optical axis of the monochromatic light generated by the second light generating instrument between the second light generating instrument and the collector optics is substantially on a straight line; and the optical axis of the white light generated by the first light generating instrument between the first light generating instrument and the collector optics is bent via the light guiding instrument, since it has been held that rearranging parts of an invention involves only routine skill in the art. In *re Japikse*, 86 USPQ 70.

With respect to claim 12, Bohler in view of Noji discloses the projection display apparatus of claim 7, Bohler does not disclose wherein: the first light generating instrument is driven by a first power supply based on supply of power from outside, the

Art Unit: 2878

second generating instrument is driven by a second power supply which is a built-in power supply; the control instrument monitors a status of the first power supply and the second power supply, and the control, instrument, (i) on detecting that at least the first power supply is supplied with the power from outside, controls the light guiding instrument to guide the monochromatic light to the color wheel, and then controls the light guiding instrument to guide the white light to the color wheel, instrument and (ii) on detecting that the first power supply is not supplied with the power from outside, controls the light guiding instrument to guide the monochromatic light to the color wheel.

Noji discloses the first light generating instrument is driven by a first power supply based on supply of power from outside (110 via power supply 107),the second generating instrument is driven by a second power supply which is a built in power supply (107); the control instrument monitors a status of the first power supply and the second power supply (microcomputer monitors the power the status of the first and second power supply via the supply 107: implicitly disclosed by); the control instrument on detecting that at least the first power supply is supplied with the power from outside (implicitly disclosed by lines 35-40) to operate the second light generating instrument and then the first light generating instrument on detecting that the first power supply is not supplied with the power from outside (col.9,lines 49-58).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the power system of Bohler with dual power system and control instrument of Noji so that on detecting the light guiding instrument the control instrument controls the light guiding instrument to guide white light to the color wheel and on

Art Unit: 2878

detecting that a first power supply is not supplied with power from outside, controls the light guiding instrument to guide the monochromatic light to the color wheel to efficiently utilize the desired light source

With respect to claim 13, Bohler in view of Noji discloses the projection display apparatus according to claim 1, Bohler discloses in which the second light generating instrument is a light-emitting diode or a laser diode (2a: see col. 4, 41-49 which discloses an LED or Laser).

With respect to claim 14, Bohler in view of Noji discloses the projection display apparatus according to claim 1, Bohler discloses in which the first light generating instrument is a lamp which emits light by arc discharge (101).

With respect to claim 15, Bohler in view of Noji discloses the projection display apparatus according to claim 1, Bohler does not disclose in which the light guiding instrument includes a mirror surface located between the optical axis of the white light and the optical axis of the monochromatic light by rotation or parallel movement.

Noji discloses in which the light guiding instrument includes a mirror (3a) surface located between the optical axis of the white light and the optical axis of the monochromatic light (as discussed above in claim 1) by rotation or parallel movement (see fig.1 wherein the mirror moves between the optical axis of light sources 1a and 2a).

It would have been obvious to one of ordinary skill in the art to modify the light source arrangement and light guiding instrument of Bohler so that light sources could be switched by parallel movement to efficiently utilize the desired light sources.

With respect to claim 16, Bohler discloses an image display method using: a first light generating instrument (101) which generates white light; a second light generating instrument (104) which includes a plurality of solid state light source which generate red, green, and blue monochromatic light respectively (see paragraph 0049); a color wheel including (5A) including first, second, and third regions corresponding to red, green, and blue colors respectively, the first, second, and third regions circularly arranged; a light modulation (120) element which modulates the light that has passed through the color wheel and, and wherein: the method includes a light guiding step of switching between guiding the white light and the light generated by the monochromatic light to the light color wheel (the timing circuit allows the a guiding element 103 to go from guiding white light to guiding monochromatic light).

Bohler does not disclose the method step of using a projection instrument to project modulated light.

Noji discloses using a projection instrument to project modulated light (14).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of displaying an image of Bohler with the projection instrument of Noji to improve the utility of the display device.

With respect to claim 18, Bohler does not disclose a recording medium which is recorded a program and processable by the computer, wherein the program is for causing a computer to function as a control instrument which controls at least operation of the light guiding instrument of the projection display apparatus according to claim 6 (implicitly disclosed by the microprocessor which controls operation of the projector see fig.4 and 5).

Noji discloses the method includes a light guiding step of switching between guiding the white light and the light generated by the second light generating element to the light modulation element (see fig.1 wherein the mirror moves between the optical axis of light sources 1a and 2a) ; and the light guiding step guides the light generated by the second light generating element to the light modulation element and then guides the white light to the light modulation element (see fig.1 wherein the mirror moves between the optical axis of light sources 1a and 2a) and a recording medium which is recorded a program and processable by the computer, wherein the program is for causing a computer to function as a control instrument which controls at least operation of the light guiding instrument of the projection display apparatus (implicitly disclosed by the microprocessor which controls operation of the projector see fig.4 and 5).

It would have been obvious to modify the method of Bohler with the method of control and computer system (as discussed above) so that the operations of claim 6 can be run by computer and thereby the desired light sources can be utilized.

With respect to claim 19, Bohler in view of Noji discloses the device according to claim 3, Bohler discloses wherein the color wheel further includes a region corresponding to white (clear: 0032), and the second light generating instrument lights up, when the region corresponding to white is located in the light path, all the solid state light sources (implicitly disclosed by 0032 and 0049).

Response to Arguments

Applicant's arguments with respect to claim 1, 3, 4,6,8 and 10-16,18 and 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 2878

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JERRY BROOKS whose telephone number is (571)270-5711. The examiner can normally be reached on Monday-Friday, 9 a.m.- 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JERRY BROOKS/
Examiner, Art Unit 2878

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Primary Examiner, Art Unit 2878

Application/Control Number: 10/587,759
Art Unit: 2878

Page 14